CITY OF PARIS (PWS 6040022)
SOURCE WATER ASSESSMENT FINAL REPORT

October 30, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the springs and aquifer characteristics.

This report, *Source Water Assessment for City of Paris, Idaho*, describes the public water system (PWS), the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The City of Paris (PWS # 6040022) consists of three springs (North Spring, South Spring, and the Main Spring). The springs are located west of the City of Paris at the head of Paris Canyon. Water from all three springs flow into concrete collection boxes, then piped to a 10-inch diameter transmission line, which carries the water to a 15,000 gallon storage capacity junction box, then to the city. The system supplies approximately 600 persons through 287 connections.

Final susceptibility scores are derived from weighting system construction scores and potential contaminant/land use scores. Therefore, a low rating in one category coupled with a higher rating in the other category results in a final rating of low, moderate, or high susceptibility. As springs are generally located in undeveloped areas, overall ratings tend to be low to moderate, unless there have been previous detections of contaminants. Potential contaminants are divided into four categories, inorganic chemical (IOC) contaminants (i.e. nitrates, arsenic), volatile organic chemical (VOC) contaminants (i.e. petroleum products), synthetic organic chemical (SOC) contaminants (i.e. pesticides), and microbial contaminants (i.e. bacteria). As different springs can be subject to various contamination settings, separate scores are given for each type of contaminant.

The potential contaminant sources within the delineation capture zones include the roads leading to a nearby campground. The watershed contributing to the spring is undeveloped with no identified point source contaminants. This lack of contaminants is the primary reason for the lowered susceptibility scores (Table 1).

For the assessment, a review of laboratory tests was conducted using the Idaho Drinking Water Information Management System (DWIMS) and the State Drinking Water Information System (SDWIS). No VOCs or SOCs have been detected in the drinking water. The IOCs fluoride and nitrate have been detected in the drinking water, but at concentrations below the maximum contaminant level (MCL) for each chemical. No coliform bacteria have been detected in the distribution system.

In terms of total susceptibility, all three springs rated automatically high for IOCs and microbial contaminants and low for VOCs and SOCs (Table 1). The Main Spring (Tag # E0006984) has trail access as a tourist attraction, making it particularly vulnerable to the possibility of contamination. The South Spring (Tag # E0007079) is located within 20 feet of the Utah Power and Light electric company diversion canal. The North Spring (Tag # E0007078) is located in a cattle pasture and borders a creek formed by the overflow of the Main Spring.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the City of Paris, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (inspections conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). There should be no application or storage of herbicides, pesticides, or other chemicals within 100 feet of the springs. Also, the gas chlorination disinfection system should be maintained to reduce the chance of microbial contamination. Any new sources that could be considered potential contaminants that reside within a water source’s zones of contribution should be investigated and monitored to evaluate the threat the contaminant may pose in the future. As land uses within most of the source water assessment areas are outside the direct jurisdiction of City of Paris, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Educating city employees and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods and the importance of water conservation. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Bear Lake County Soil and Water Conservation District, and the Natural Resources Conservation Service. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CITY OF PARIS, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the springs, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the public water system (PWS).**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Paris (PWS # 6040022) consists of three springs (North Spring, South Spring, and the Main Spring). The springs are located west of the City of Paris at the head of Paris Canyon (Figure 1). Water from all three springs flow into concrete collection boxes, then piped to a 10-inch transmission line, which carries the water to a 15,000 gallon storage capacity junction box, then to the city. The system supplies approximately 600 persons through 287 connections.

No volatile organic chemicals (VOCs) or synthetic organic chemicals (SOCs) have ever been detected in the drinking water. The inorganic chemicals (IOCs) fluoride and nitrate have been detected in the drinking water, but at levels well below the maximum contaminant level (MCL) for each chemical as set by the EPA. No coliform bacteria have been detected in the distribution system.

Defining the Zones of Contribution – Delineation

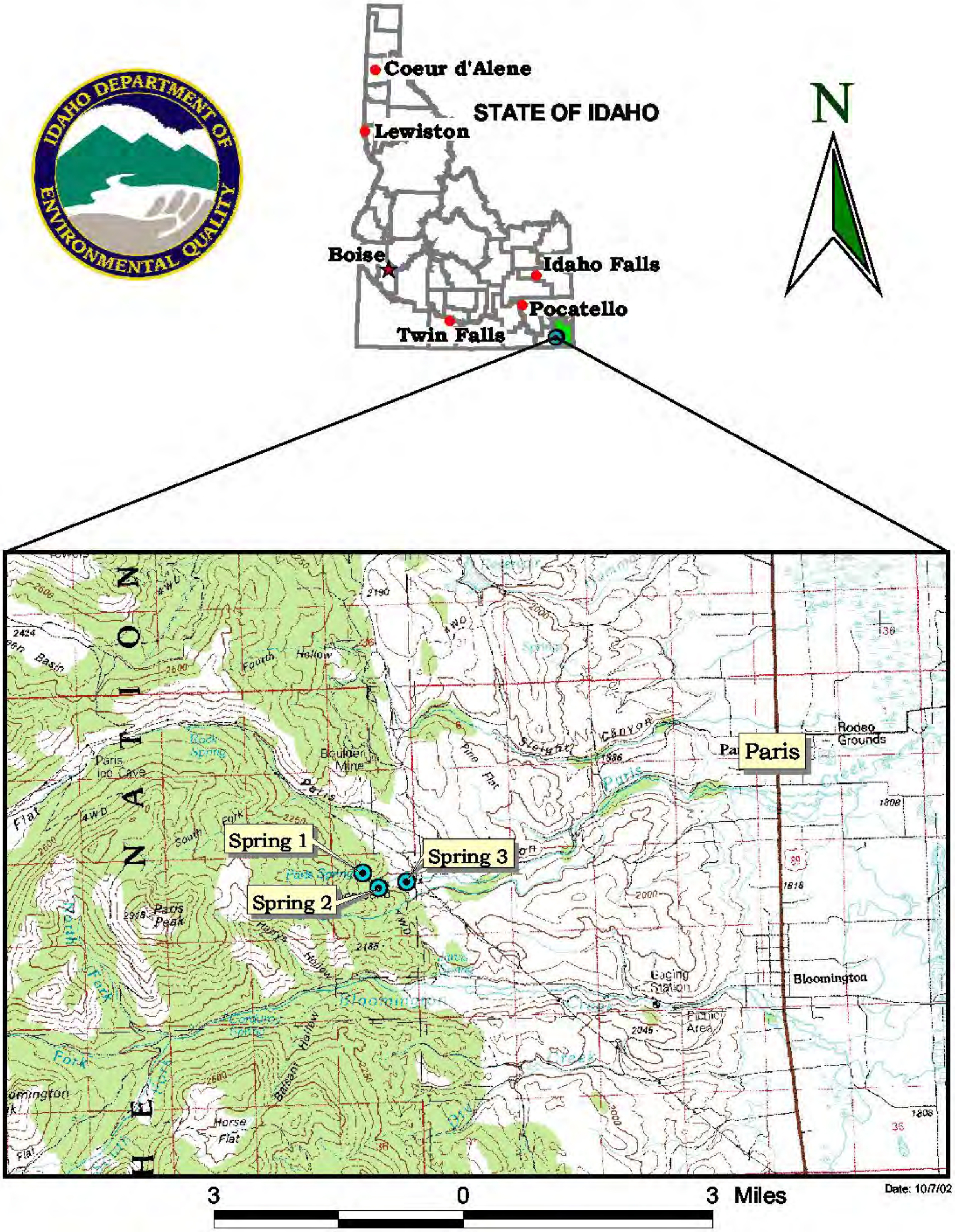
The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a conceptual model approved by the EPA in determining the 3-year (Zone 1B) TOT for water associated with the "None" hydrologic province in the vicinity of the City of Paris. The model used site specific data, assimilated by WGI from a variety of sources including operator records and hydrogeologic reports. A summary of the hydrogeologic information from the WGI is provided below.

Hydrogeologic Conceptual Model

Graham and Campbell (1981) identified and described 70 regional ground water systems throughout Idaho. Thirty-four of these fall within the southeastern part of the state. The “None” hydrologic province, as defined in this report, includes all the area outside of the 34 regional systems in southeast Idaho. The smaller and more localized aquifers in the “None” province typically are situated in the foothills and mountains that surround and recharge the regional ground water systems.

The mountains and valleys within the “None” hydrologic province were formed during two events separated by approximately 50 to 70 million years (Alt and Hyndman, 1989, pp. 329 and 336). The overthrust belt of the northern Rocky Mountains was formed roughly 70 to 90 million years ago through the intrusion of granitic magma and a massive eastward movement of large slabs of layered sedimentary rocks along faults that dip shallowly westward (Alt and Hyndman, 1989, p. 329). This movement caused extreme folding and fracturing of the sedimentary and granitic rocks and, in many cases, left older formations lying on top of younger ones. Later Basin and Range block faulting broke up the largely eroded Rocky Mountains into large uplifted and downthrown blocks resulting in the present day northwest trending mountains and valleys seen throughout southeast Idaho. Paleozoic and Precambrian limestone, dolomite, sandstone, shale, siltstone, and quartzite are the predominant materials forming the mountains and probably compose the bedrock underlying the valleys between Salmon, Idaho on the north side of the Snake River Plain and Franklin, Idaho near the Utah/Idaho border (Dion, 1969, p.18; Kariya et al., 1994, p. 6; Bjorklund and McGreevy, 1971, p. 12; and Parliman, 1982, p. 9).

FIGURE 1 - Geographic Location of City of Paris, PWS: 6040022



Ground water movement in the mountains is primarily through a system of solution channels, fractures and joints that commonly transmit water independently of surface topography (Bjorklund and McGreevy, 1971, p. 15; Dion, 1969, p. 18). Ralston and others (1979, pp. 128-129) state that the geologic structural features also can contribute to the development of cross-basin ground water flow systems. Ground water entering a geologic formation tends to follow the formation because hydraulic conductivities are greater parallel to the bedding planes than across them. Synclines and anticlines provide structural avenues for ground water flow under ridges from one valley to another.

The average annual precipitation in the mountains of southeast Idaho ranges from 20 inches on ridges near Soda Springs to over 45 inches on the Bear River Range (Ralston and Trihey, 1975, p. 7, and Dion, 1969, p. 11). The valleys receive an average of 7 to 10 inches annually (Donato, 1998, p. 3, and Dion, 1969, p. 11). Precipitation and seepage from streams are the primary source of recharge to the mountain aquifers (Kariya, et al., 1994, p. 18, and Parliman, 1982, p. 13).

Ground water discharge occurs as springs and seeps issuing from faults, fractures, and solution channels and as underflow to regional aquifers. The Bear River Basin in the far southeast corner of the state contains hundreds of springs issuing primarily from fractures and solution openings in the bedrock mountains (Dion, 1969, p. 47, and Bjorklund and McGreevy, 1971, pp. 34-35). Within Cache Valley many springs discharge from the valley-fill deposits (Kariya et al., 1994, p. 32).

There is little available information on the distribution of hydraulic head and the hydraulic properties of the aquifers in the “None” hydrologic province. No U.S. Geological Survey (2001) or Idaho Statewide Monitoring Network (Neely, 2001) wells are located in the areas of concern to provide information on ground water flow direction and hydraulic gradient or to aid in model calibration. The information that is available indicates that the hydraulic properties are quite variable, even within a specific rock type. Ralston and others (1979, p. 31), for example, present hydraulic conductivity estimates for fractured chert ranging from 2.2 to 75 ft/day. Estimates for phosphatic shale are as low as 0.07 ft/day (unfractured) and as high as 25 ft/day (fractured).

Capture Zone Modeling Method

A spring is defined as a concentrated discharge of ground water appearing at the ground surface as flowing water (Todd, 1980). The discharge of a spring depends on the hydraulic conductivity of the aquifer, the area of contributing recharge to the aquifer, and the rate of aquifer recharge. PWS springs are generally perennial. Large seasonal changes in the discharge rates are an indication of a relatively shallow flow system. While most springs fluctuate in their rate of discharge, springs in volcanic rock (e.g., basalt) are noted for their nearly constant discharge (Todd, 1980).

Delineation of the drinking water protection area for the springs involved special consideration. Hydrogeologic setting is foremost among the factors that control the shape and extent of the capture zone. A spring resulting from the presence of a high permeability fracture extending to great depth will have a much different capture zone than a depression spring formed where the ground surface intersects the water table in a unconsolidated aquifer.

The topographic method was used to delineate capture zones for the City of Paris springs. The topographic method was chosen for springs that 1) are located within relatively small drainage basins with easily definable divides, 2) have an average annual discharge that can be reasonably supplied by an average annual precipitation in the drainage, and 3) have characteristics of a shallow system such as seasonal variations in discharge and temperature.

The assumption was made that ground water divides, which represent hydrologic boundaries to shallow ground water flow, are coincident with the topographic divides. Perennial streams or other surface water bodies that may infer the presence of hydrologic boundaries were identified. Surface geologic maps were also used to identify low permeability lithologic units that may form ground water flow boundaries and to infer the extent of lithologic units that provide water to springs. Calculating the amount of recharge needed to produce the average reported spring discharge checked the reasonableness of a topographic delineation. The required recharge was then compared to the average yearly precipitation in the area surrounding the spring.

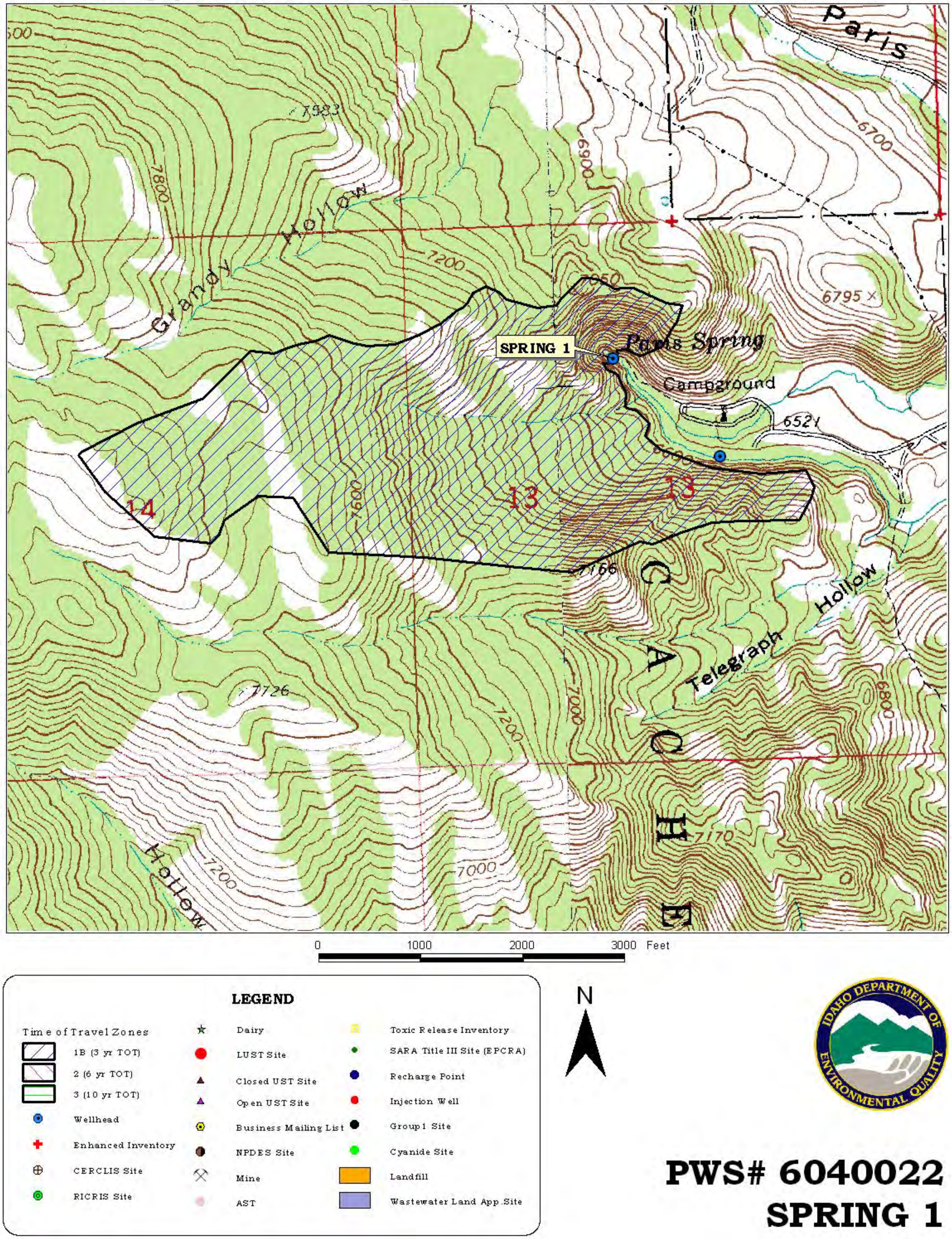
The delineated source water assessment area for springs (Figures 2, 3, and 4) comprise the watershed between Grandy Hollow and Telegraph Hollow. The actual data used by WGI in determining the source water assessment delineation area is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineation areas. The predominant land use in the area of the delineations is undeveloped forest.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply source.

FIGURE 2. City of Paris Delineation Map and Potential Contaminant Source Locations



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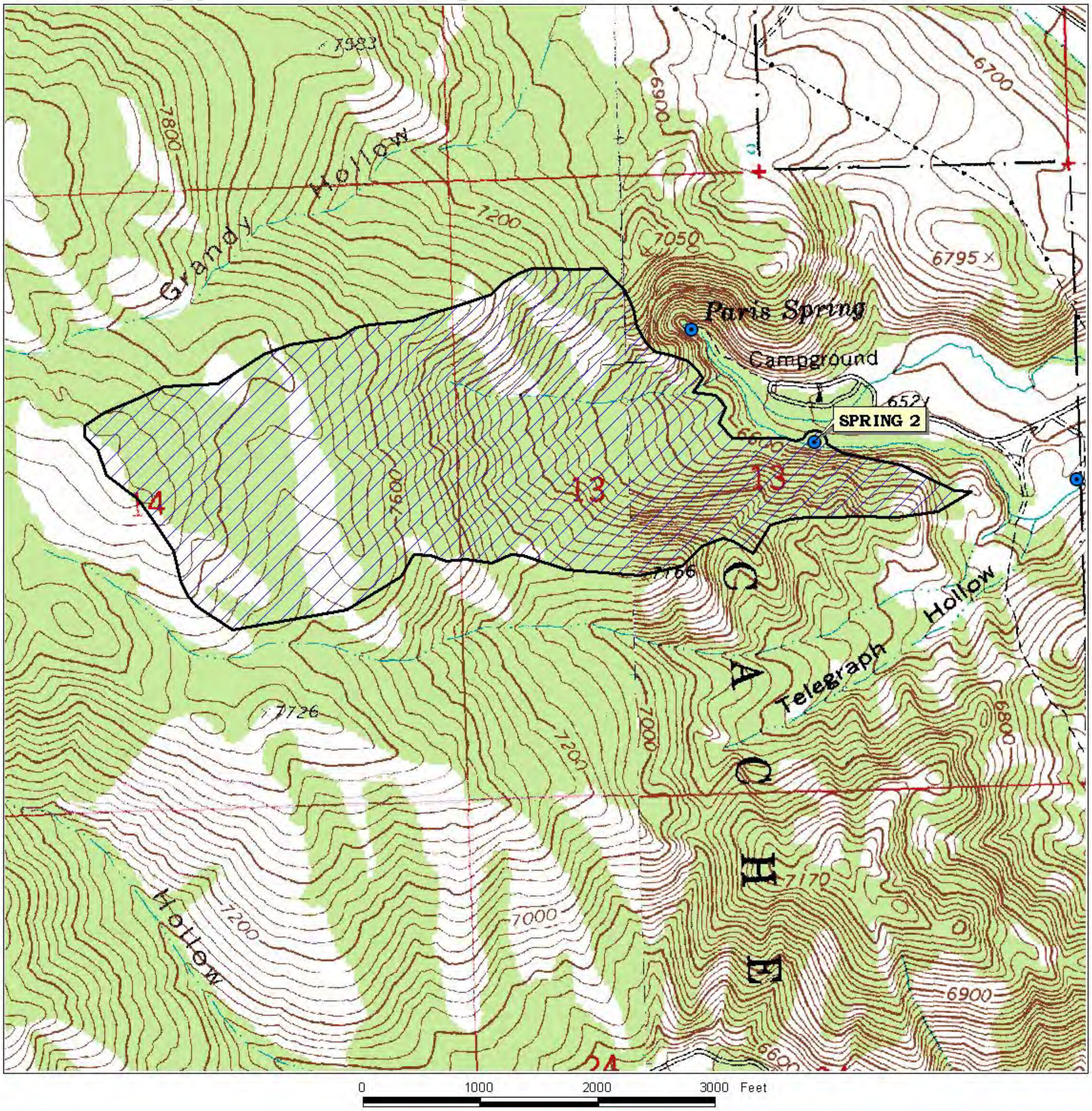
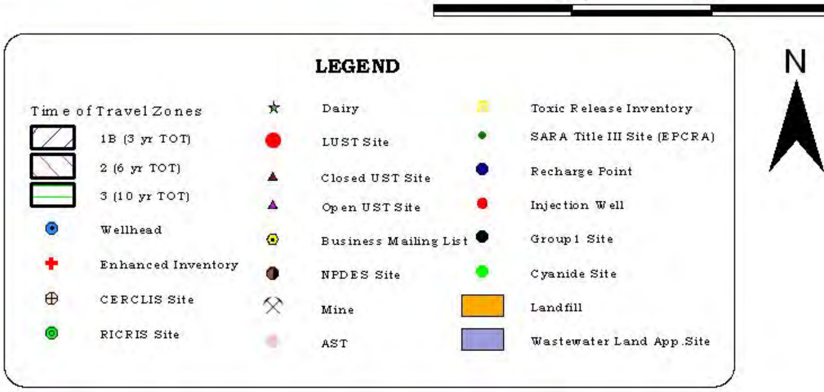
SPRING 1

FIGURE 3. City of Paris Delineation Map and Potential Contaminant Source Locations





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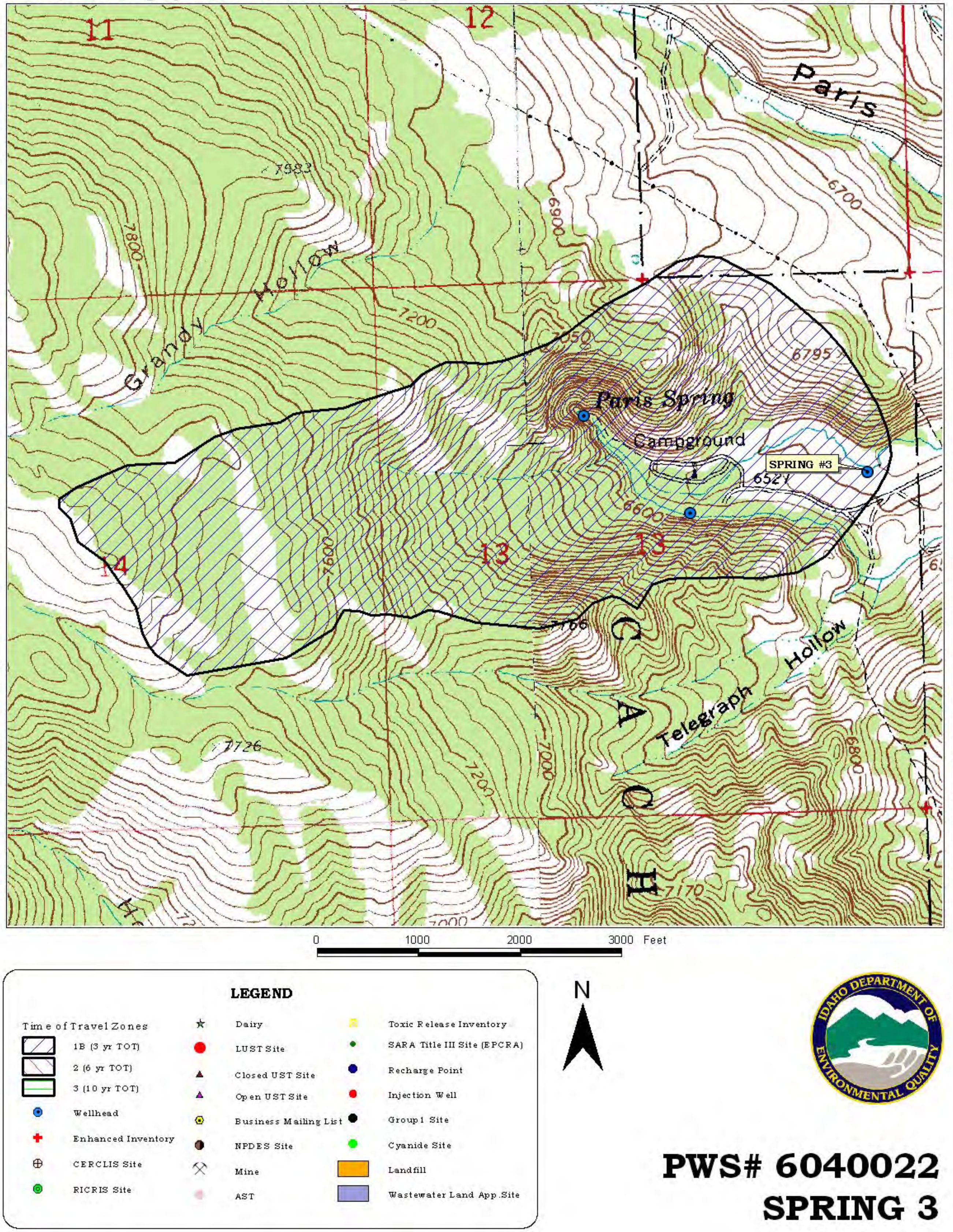
SPRING 2

FIGURE 4. City of Paris Delineation Map and Potential Contaminant Source Locations



Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in April through May 2002. The first phase involved identifying and documenting potential contaminant sources within the City of Paris source water assessment areas through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the delineated areas. This task was undertaken with the assistance of Mr. Dale Clark. Maps with spring locations, delineated areas, and potential contaminant sources are provided with this report (Figure 2 - Figure 4). Other then the nearby campground, there are no identified potential contaminants within any of the delineated areas.

Section 3. Susceptibility Analyses

The susceptibility of the springs was ranked as high, moderate, or low susceptibility according to the system construction around the source, the land use characteristics, and the potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Spring System Construction

Spring construction directly affects the ability of the intake to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the spring's water. Lower scores imply a system is less vulnerable to contamination. For example, if the intake structure of the surface water system is properly located and constructed to minimize impacts from potential contaminant sources, then the possibility of contamination is reduced and the system construction score goes down. If the system was constructed in a way that the infiltration gallery is separated from any surface water so as to provide some kind of natural filtration, the water quality is more protected and the system score is reduced.

The Main Spring (Tag # E0006984) rated low system construction (Table 1). The spring is located at the base of a steep slope, approximately 300 yards from the campground. It was redeveloped in 1988 due to high flows that eroded the covering from the pipe that extends back into the spring. A large concrete box is cast over the main vent of the spring (DEQ, 2000).

The North Spring (Tag # E0007078) and the South Spring (Tag # E0007079) rated moderate for system construction. Though both use concrete collection boxes with overlapping, locking, steel covers, no information was available about whether the springs were developed by installing casing into the ground, as is the case with the Main Spring. Installation of a pipe into the ground protects the source water more because the water does not encounter the atmosphere and surface contaminants before entering the distribution system.

Potential Contaminant Source and Land Use

The potential contaminant sources and land use within the delineated zones of water contribution are assessed to determine the spring's susceptibility. All three springs have low land use ratings for IOCs (i.e. nitrates), VOCs (i.e. petroleum products), SOCs (i.e. pesticides), and microbial contaminants (i.e. bacteria). The lack of potential contaminant sources, other than the campground and local cattle pasture, keeps the scores lowered.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the spring will automatically give a high susceptibility rating to a spring despite the land use of the area because a pathway for contamination already exists. Additionally, potential contaminant sources within 100 feet of a spring will automatically lead to a high susceptibility rating.

In this case, the Main Spring has trail access as a tourist attraction. The South Spring sits below a canal that delivers water to a power plant and the North Spring sits next to the creek that is formed by the overflow of the Main Spring as well as being located in a cattle pasture.

System construction scores are not weighted as heavily as land use scores when determining the final overall susceptibility. Having multiple potential contaminant sources, in the 0-3-year time of travel zone (Zone 1B), contributes greatly to the overall ranking.

Table 1. Summary of City of Paris Spring Susceptibility Evaluation

Drinking Water Source	Susceptibility Scores[1]								
	Potential Contaminant Inventory and Land Use				System Construction	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Main Spring	L	L	L	L	L	H*	L	L	H*
South Spring	L	L	L	L	M	H*	L	L	H*
North spring	L	L	L	L	M	H*	L	L	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = spring rated automatically high due to potential contaminant source within 100 feet of collection box

Susceptibility Summary

In terms of total susceptibility, all three springs rated automatically high for IOCs and microbial contamination. All three springs rated low for VOCs and SOCs (Table 1). The Main Spring has trail access as a tourist attraction, making it particularly vulnerable to the possibility of contamination. The South Spring is located within 20 feet of the Utah Power and Light electric company diversion canal. The North Spring borders a cattle pasture and is located next to a creek formed by the overflow of the Main spring.

No VOCs or SOCs have ever been detected in the drinking water. The IOCs fluoride and nitrate have been detected in the drinking water, but at levels below their MCLs. No coliform bacteria have ever been detected in the distribution system.

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the City of Paris, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (inspections conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). There should be no application or storage of herbicides, pesticides, or other chemicals within 100 feet of the springs. Also, the gas chlorination disinfection system should be maintained to reduce the chance of microbial contamination. Any new sources that could be considered potential contaminants that reside within a water source’s zones of contribution should be investigated and monitored to evaluate the threat the contaminant may pose in the future. As land uses within most of the source water assessment areas are outside the direct jurisdiction of City of Paris, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Educating city employees and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods and the importance of water conservation. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Bear Lake County Soil Conservation and Water District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Pocatello Regional DEQ Office (208) 236-6160

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper (208) 343-7001 or email her at mlharper@idahoruralwater.com, Idaho Rural Water Association, for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLA – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

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Attachment A

City of Paris
Susceptibility Analysis Worksheets

Spring Formula

The final spring scores for the susceptibility analysis were determined using the following formula:

1) IOC/VOC/SOC Final Score = (Potential Contaminant/Land Use X 0.818) + System Construction Score.

2) Microbial Final Score = (Potential Contaminant/Land Use x 1.125) + System Construction Score.

Final Susceptibility Scoring:

0 - 7 Low Susceptibility

8 - 15 Moderate Susceptibility

≥ 16 High Susceptibility

1. System Construction

		SCORE
Intake structure properly constructed	YES	0
Is the water first collected from an underground source? (i.e. Yes = spring developed with casing to collect water from beneath the ground; lower score. No = water collected after water contacts atmosphere; higher score.)	YES	0
Total System Construction Score		0

2. Potential Contaminant / Land Use - ZONE 1A

		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	WOODLAND/RANGELAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0

Potential Contaminant / Land Use - ZONE 1B

		IOC Score	VOC Score	SOC Score	Microbial Score
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Irrigated Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		0	0	0	0
4. Final Susceptibility Source Score		0	0	0	0
5. Final Spring Ranking		High*	Low	Low	High*

1. System Construction		SCORE
Intake structure properly constructed	YES	0
Is the water first collected from an underground source? (i.e. Yes = spring developed with casing to collect water from beneath the ground; lower score. No = water collected after water contacts atmosphere or unknown; higher score.)	NO	2
Total System Construction Score		2

2. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	WOODLAND/RANGELAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Irrigated Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		0	0	0	0
3. Final Susceptibility Source Score		2	2	2	2
4. Final Spring Ranking		High*	Low	Low	High*

1. System Construction		SCORE
Intake structure properly constructed	YES	0
Is the water first collected from an underground source? (i.e. Yes = spring developed with casing to collect water from beneath the ground; lower score. No = water collected after water contacts atmosphere or unknown; higher score.)	NO	2
Total System Construction Score		2

2. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	WOODLAND/RANGELAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or	YES	1	1	0	
4 Points Maximum		1	1	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Irrigated Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		3	3	3	3
Cumulative Potential Contaminant / Land Use Score		3	3	3	3
3. Final Susceptibility Source Score		4	4	4	5
4. Final Spring Ranking		High*	Low	Low	High*